

TURNBULL, (C.S.)

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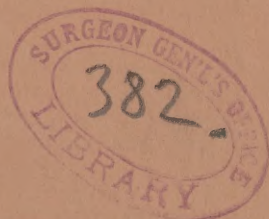
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Powdered Boracic Acid
in the treatment of
Chronic Purulent Inflammation of the
Middle Ear ("Otorrhœa").

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POWDERED BORACIC ACID IN THE TREATMENT OF CHRONIC PURULENT INFLAMMATION OF THE MIDDLE EAR. ("OTORRHŒA.")

By CHAS. S. TURNBULL, M.D.
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A most gratifying experience in the use of powdered boracic acid in the treatment of chronic purulent inflammation of the tympanal mucous membrane, the constant symptom of which is otorrhœa, has induced me to consider the antiseptic, or what might be more accurately termed the "*dry method*" of treatment. The use of the syringe is in my practice a thing of the past, except in so far as employed for the removal of impacted cerumen, foreign bodies, etc. During the past twelve years in which I have been working in the department of Otology under Knapp, Politzer, Gruber, Schrötter, my father (L. Turnbull), and others, I have had unusual facilities for studying purulent diseases of the middle ear, as well as of ascertaining their cause, and although having of late followed quite a new departure in aural therapeutics am able to record a much larger than ordinary percentage of *absolute cures*.

As a great proportion of inflammatory affections of the middle ear may and do frequently terminate in suppuration, resulting in perforation of the membrana-tympani, and a discharge of serum, muco-pus or pus, which escapes from the external auditory meatus, it necessarily follows, that otorrhœa must be a very frequent aural symptom.

The marked success which has attended the modern, dry, antiseptic treatment of cases under my care, causes me to advocate its use in this most frequent form (in this country) of aural disease. I must admit that up to about two years ago, I felt like avoiding all cases of chronic purulent middle ear inflammation, that is, otorrhœa. I examined and treated the same with



inward misgivings, because I was a non-believer in all the methods in vogue. I had learned by experience to have no faith in the prescribed forms of cleansing, medicating and managing the ears of such of my patients as suffered from chronic otorrhœa. I had become so dissatisfied, that until recently I actually disliked to see, much less to be consulted by, a patient with a discharging ear. I was entirely disgusted with syringing. The odor of the usually worse than fetid discharges was at times actually nauseating, and until I commenced to use "Platt's Chlorides," a most valuable disinfectant and deodorant, I could keep neither fingers nor instruments free from the characteristic odor.

The practice of either medicine or surgery gives us more or less pleasure in so far as we are successful, and I must confess that, although successful to a degree, scarcely a day passed without my feeling chagrined at my utter want of confidence in the ordinary and various methods of treating chronic purulent discharges from the ear. In the otorrhœas following the exanthemata, especially scarlet fever, I felt less hopeful, and, naturally, it was more difficult, when self-despairing, to encourage my disheartened patients, than to treat the persistent foul discharge from their auditory meatus.

Having once made a diagnosis, there seemed to be nothing left but the employment of the customary unsatisfactory methods of treatment, namely, the removal of all growths, granulations or polypi and the subsequent use of astringent and so-called disinfectant washes to be instilled into the ear. Our old friend, nitrate of silver, was used for polypoid granulations which sprouted and waxed large under its topical stimulation, while solutions of the same in varying strengths now and then seemed to act happily and cure certain cases. Carbolic, chromic, and acetic acids, sulphate and sulpho-carbolate of zinc, sulphate of cadmium and copper, alum, permanganate of potassium, etc., were in turn used, and found beneficial in only a few cases. Then tannin, as a powder, was tried, and still more recently when combined with iodoform and thymol. These powders dried or partially melted and filled the meatus with an ugly black mass, which acted as an irritating foreign body, and smelled almost as disagreeably as the purulent discharge itself. Thymol was formerly supposed to cover the odor of iodoform. Patients invariably objected to the odor of iodoform, and,

although I have been recently furnished with a sample of so-called "deodorized iodoform," I must confess that it, as soon as exposed to the air, smelled as badly as the original article: and I am of the opinion that if a deodorized iodoform be procured, it will no longer be iodoform,—that is, from a therapeutical stand-point.

Anything new in therapeutics, especially as a means of combating that most frequent of aural symptoms, "otorrhœa," must call for immediate and specific attention, not only on account of its practical worth, but also for the greater power it gives every physician to control, yes cure, what hitherto has been generally considered an incurable (symptom of a) disease of the middle ear.

A symptom of a disease is often dignified with a specific title, as is the case with the use of the term "otorrhœa," which frequent usage in medical parlance has caused to be understood as synonymous with the now recognized and self-defining name, "chronic purulent (or suppurative) inflammation of the middle ear."

The causes which may lead to the existence of a chronic discharge from the ear are well known to the careful observer, but they are by far too numerous to be mentioned in detail at this time.

Whatever tends to provoke an inflammation of the mucous membrane lining the middle ear or its appendages, may lead to a perforation of the membrana-tympani and a discharge from the middle ear. In passing I must mention that it oftenest occurs in infancy, as reflex (tonic) from dentition. It may be, and is, alas! too often a sequence of the dread exanthemata, inherited taints (tubercle and syphilis), and is frequently caused by inflammatory extension from the gastro-pulmonary mucous membrane, nasal, post-nasal, supra-post-nasal and tubal spaces, and the much-vaunted irrigating treatments for the same. Last, but not least, by exposure, carelessness in cleansing the meatus, too forcible blowing of the nose, bathing, injections of aqueous solutions of *castile soap*, instillations of animal or vegetable oils, glycerine, etc., etc. The invariable tendency of most forms of *acute* purulent inflammation of the middle ear is to get well of themselves, if it were not that the peculiar conditions of the parts provoke the *fermentation* of stagnant secretions, the subsequent formation of pus, "the emigration of bacteria" (Loew-

enberg),* and the meddlesome interference of those who never pause to consider the conditions present, but pursue time-dishonored plans of guess-treatment, which are, as a rule, dependent upon the fragile experience of empiricism.

The curing, that is, the stopping of a purulent discharge from the ear is the only desideratum, as it would seem, to many sufferers and their medical attendants, but I want to state emphatically that as a rule the discharge in itself does but little harm, it is a too heroic treatment, and the subsequent process of cicatrization, which, to a greater or less extent, damage the hearing power. It calls for intelligent management so that the functions of the acoustic apparatus (the tympanum and its appendages) may be not only preserved intact, but also be kept in motion. Precisely the same as in the case of a compound comminuted fracture of a limb, the surgeon is not especially anxious over the pain, amount of discharge, etc.; it is the course of the repair process as it influences the subsequent usefulness of the limb in question which *most* concerns him.

Acute purulent inflammations of the middle ear, as a rule, run a prescribed course, and, as we have already said, care for themselves, but at the same time the subsequent cicatricial contractions, due to plastic inflammatory changes within the middle ear (that is, the formation of connective new tissue, ankylosis of ossicles, etc., etc.), almost always produce more or less deafness and tinnitus aurium.

Chronic purulent inflammation of the middle ear continues its work of destruction year in and year out, gradually corroding the contents of the middle ear and seriously compromising the functions of its appendages (Eustachian tubes and mastoid cells), also by destroying the membrana-tympani and ossicles (malleus and incus, *rarely if ever the stapes*) and leaving a large gaping external meatus, ending in the posterior wall of the tympanum ("promontory" or *external wall of cochlea*) with its round window ("fenestra rotundo") exposed, and the stapes, *in situ*, over the oval window ("fenestra ovalis"). Upon these delicate parts, covered by an inflamed or ulcerated mucous membrane (which, it must be remembered, acts the part of the periosteum), all sorts of foreign material collect, and these with the added irrita-

* Archiv. Otolology, Vol. X. Nos. 3 and 4. Translated by Jas. A. Spalding, Portland, Me., and Isidor Furst, New York.

tion from fermenting discharges (caused by the high temperature of the parts, collections of bacteria etc.) increase the fire of inflammation which burns fiercely and the mucous membrane in defence of itself pours out a copious secretion.

To remedy these affections, general surgery has done but little, so that in many instances medical men are glad to get rid of "patients with running ears," and this added to the prejudices in the minds of the community at large, and in some of the profession, too, as to the injurious effect of healing or "drying up" as it is termed, discharges from the ear, has caused this affection, through ignorance or apathy, to be much neglected. I cannot in this connection omit Sir Wm. Wilde's* quotation from Saunders† who tersely ventures a question or two concerning those prejudices which even to-day, alas! are urged against the cure of chronic otorrhœa. "What argument can be assigned against the cure of this disease that is not equally conclusive against all others? Is any one an abettor of the obsolete humoral pathology? He will contend that the stoppage of a drain which nature has established is pernicious, and the morbid matter will be determined on the internal parts: but how can such a person venture on the treatment of any disease, even the healing of a common ulcer? Some years ago I thought this absurd doctrine had been totally exploded, and yet I constantly hear it adduced to deter parties from interfering with this disease. Is a child a subject of it,—the parent is told it is best to leave it to nature, and the child will outgrow it. Is it an adult,—some other subterfuge, equally futile, is employed. The truth is, the disease is always tedious and difficult, and *not* always curable, and many are disinclined to embarrass themselves with the case, who have not candor to make the true statement."

I have often been met with the objection, and, I must confess, it is generally well put, "Why dry up the purulent discharge from the ear, since when suppuration is actually taking place patients, as a rule, hear best?" True enough, as the discharge ceases in a case of chronic otorrhœa, hearing

* Aural Surgery. Sir William R. Wilde, Dublin, 1853, edited by Addinell Hewson, M. D.

† The Anatomy of the Human Ear, illustrated by a series of engravings of the natural size, with a Treatise on the Diseases of that Organ, the Causes of Deafness and their proper Treatment, by John Cunningham Saunders. London, 1806.

power is, as a rule, materially diminished—but I always make reply by asking the question: “Which is better, half a loaf or no loaf?” that is, to stop the discharge and save some hearing, *which will be permanent*, or allow the discharge to continue, and, in a greater or less time, lose all hearing? Then, too, if only for the abolition of the disgusting fetor which accompanies such cases, if for nothing else, it is well worth while risking any fancied extension of the inflammatory process. Children with “running ears” are tabooed by their class and playmates. Adults are tolerated, while, self-conscious of the sickening odor from their ears, they shun society, and imagine, not without good cause, that every one is aware of their infirmity. The majority of such patients are generally willing to forego the greater or less amount of loss of hearing power, if the offensive discharge can be prevented.

Beyond a doubt a discharging ear is a thorn in the flesh, to be withdrawn in the shortest possible time. Apart from the risk of damage from a chronic purulent middle-ear inflammation (and its accompanying otorrhœa) to the hearing and subsequent happiness of the individual, is the undoubted compromised condition of the unfortunate’s health. Fetid discharges run down the Eustachian tubes and poison the system. This no fancy deduction, but a fact. I can point to at least ten cases, treated within the last six months, where children have presented themselves in a chronic septic condition consequent upon the fact stated. By simple cleansing of the ears and teaching my patients how by Valsalva’s method to blow the pus outward from the tympanum into the meatus which I keep filled with an antiseptic powder, *and not with cotton*, I have met with most pleasing results in these same children, who, from pale and emaciated subjects, have grown into fat and ruddy specimens of humanity.

Again, I am often confronted with the objection that “if these discharges from the ear should be stopped the disease will go to the brain.” How did this idea originate? Because heretofore such heroic measures were used to check the discharge, because such caustic solutions were poured, and powders were insufflated, into the ears, furthermore because no intelligent treatment was employed. In the majority of cases no careful ocular inspection of the parts was ever made, and extension of inflammation and disease to the inner ear, or even brain, resulted.

(One word just here concerning the "insufflation" of powder into the external auditory meatus. I was never satisfied with the procedure, and was always forcibly reminded, on attempting such "insufflation," of the familiar trick of trying to blow into a bottle, which lies on its side, a light paper ball placed within its mouth. The harder one blows the more certain is the ball to fly out of, rather than into, the empty bottle. Precisely the same thing occurs when the attempt is made to insufflate powder into the auditory meatus; because the return current carries the most of it out again, leaving little or none in the meatus. The operator generally gets the most in his face. This point will be appreciated by those who have attempted to employ powdered iodoform in this way. Better drop one-fourth of the quantity proposed to be insufflated through a clean speculum.)

Bezold conceived the idea that boracic acid had failed on account of the powder used. He therefore procured *boracic acid in an impalpable powder*, and when he began *packing the meatus tightly* with it, obtained excellent results.

After my father's return from Europe in 1879, and especially after having visited Politzer in Vienna, Cassells in Glasgow, and Jones in Cork, he became a convert to the use of powdered boracic acid, and his success, coupled with my own, soon led me to be an enthusiast of the same persuasion.

We have given up the syringe as a means of treatment and have adopted the dry antiseptic method and the exclusive use of powdered boracic acid, which, in all chronic cases, we pack and repack into the meatus until there is a cessation of all discharge.

It is not, then, that I would claim for my father any discovery, but simply credit for having first introduced and perseveringly employed and, while advocating, taught* the use of powdered boracic acid for the successful treatment of chronic "otorrhœa."

I have described, at length, the exact details of the method which I considered indispensable to a successful use of powdered boracic acid for "otorrhœa," and furthermore I am, from my own experience and observation, led to consider this treatment as specific, because I have cured almost every case of the hundreds I have recorded for the past three years.

* Lectures by L. Turnbull, M. D., Aurist to the Jefferson Medical College Hospital, Philadelphia, November, 1879.

J. Orne Green, M. D. (*Boston Medical and Surgical Reporter*, June, 1860), in the course of a series of interesting and instructive views of the "Recent Progress of Otology," refers to a paper by Bezold,* on the "Antiseptic Treatment of Suppuration of the Middle Ear," in which Bezold says he has given up all others and prefers boracic acid as the most suitable antiseptic which he has used, finely pulverized, "to fill the meatus" or blow over the suppurating surface. He does not consider that it supplants, but rather assists, other methods of treatment.

Bezold's statistics were given to show the favorable action of this treatment upon twenty-nine cases of otitis media purulenta acuta, the average duration of the otorrhœa being thirteen days. Of one hundred and sixteen cases of otitis media purulenta chronica, the average duration was nineteen days.

Since Bezold's paper, Bückner† speaks largely of the powdered acid in the otorrhœas, and Dr. J. O. Green also recommended Bezold's treatment, which he had used extensively in the meantime.

From that time to the present, with but few exceptions, the treatment recommended by Bezold and Green was given a trial, but although Politzer, of Vienna, recommended it highly, and Cassells, of Glasgow, did the same thing, no one was satisfied that the plan of treatment was particularly efficacious, or to be preferred to many others.

The great mistake, as I have discovered, was in the fact of many experimenters not having observed Bezold's instructions; namely, that *the boracic acid must be nicely powdered*.

The ear is not to be syringed at all; it should be cleansed with absorbent cotton. How can a meatus, as tender and swollen and excoriated as they usually are in "otorrhœas," be cleansed with cotton on a probe? We answer most emphatically: Not by guess-work, nor in the dark. Unless the meatus be thoroughly illuminated, every pledge will in the majority of cases, except in experienced and careful hands, impinge against one or the other side of the wall of the meatus, and cause pain, exudation, etc., etc.

With the forehead-mirror adjusted so as to illuminate the meatus, the (outer) cartilaginous portion of the meatus can be thoroughly cleansed. I use the left hand to grasp the auricle

* Archiv für Ohrenheilkunde, Vol. XV., 1, Bezold.

† Archiv für Ohrenheilkunde, Vol. XVI., 1, Bückner.

and straighten the canal, and the right to manipulate the cottoned probe. Having gone so far, a speculum is carefully introduced, *illuminating as I proceed*, and through this (unless the meatus be unusually large, when the speculum can be dispensed with) the inner (osseous) portion can be cleansed down to the membrana-tympani. So much for the meatus. Now the tympanum must be cleansed. I never attempt to wipe through or into a perforation, but whilst the patient, by Valsalva's method, blows out any intra-tympanal secretion, wipe it up, or, in case of Valsalva's method being impossible or impracticable, I forcibly inflate with Politzer's air-douche, and so free the tympanum by blowing any collection into the external meatus.

According to the character of the intra-tympanal secretion am I guided in the introduction of the antiseptic powder, hence especial note must be made of the exact variety of the discharge as regards color, odor, consistency, etc., etc.

As the cleansing procedure is more or less apt to provoke reflex coughing, it must be gently and carefully done; *in fact, the successful treatment of any case greatly depends upon the method of cleansing the meatus*. If it be carelessly done more discharge is provoked, and an artificial eczema, aggravated by the powder used, defeats the objects sought by a thorough cleansing. As a rule, all applications of any powders, even such unirritating ones as boracic acid, become painful when they enter the tympanal cavity, and more especially as they dissolve and run down into the Eustachian tube; through which, experience has taught me, I dare not allow even pure water to pass, if I in any way consult the comfort of my patients. Solutions of borax, or better, boracic acid, water, and glycerine, may be used if the sensitiveness of the parts or the character of the secretions collected therein does not allow the use of the cottoned probe. Experience in the procedure of cleansing is absolutely necessary to success, and unless the operator make up his mind to conscientiously don the forehead-mirror, and methodically and carefully, under a good illumination, wipe out the meatus and thoroughly pack it with the powder used, he had better give up and call upon some one with more patience and experience.

Having cleansed the meatus the speculum is to be removed and thoroughly dried inside as well as outside. If admissible, and especially if the meatus be straight, a hard rubber conical

speculum is to be cautiously introduced as deeply as possible, being careful at the same time that such manipulation shall not scrape off the macerated epidermis, else half the calibre of the speculum will be occluded by such moist masses. With the speculum *in situ* the patient's head is to be placed at right angles to the body, or better, by resting the opposite side on the open hand or on a small cushioned table for the purpose. The patient's eyes should be kept closed and a napkin placed over the neck and clothing for obvious reasons. With a small hard rubber spoon, or better the old gorget-like instrument of Wilde, the powder is to be poured into the speculum, *ad libitum*. A little will drop through, but the bulk of the powder will remain in the speculum and this will require displacing and *packing*. To hold the speculum still and pack down the powder without causing pain from the edges of the speculum is no easy procedure. Force cannot be employed because by the pressure the edges of the speculum will cut; then too, and suddenly, the mass moves, and whatever is used to thrust it down is apt to impinge, with more or less force, upon the delicate parts beneath. I use a thin steel probe with the point (about 1 line) bent at a right angle, and whilst the auricle and speculum are held immovable, the parts being illuminated with the head mirror, (the head of patient unmoved from first position) I hug the inside wall of the speculum, and so can always tell when I am down to its lower orifice. As the powder is filled into the meatus, through the speculum, it is *packed*, layer upon layer, not tightly, but firmly, meanwhile I gradually withdraw the speculum until it reaches the mouth of the meatus. Here I insert a light pledget of cotton, only to be worn for six or eight hours (until bed time), and then to be withdrawn and not again introduced.

My directions to my patients are to permit, in fact endeavor to have all the powder possible remain within the meatus. If any moisture be felt, sop (that is wipe by pressing) the mass, and soak out the discharge with absorbent cotton or dry thin linen, but do not disturb the powder. From the moment this agent is used all odor, even from the most fetid discharges, ceases, and unless the discharge be extraordinarily profuse, never returns. No reaction ensues if filled into the meatus as I have directed.

I am now willing to confess that I have hesitatingly packed the meatus full of this powdered boracic acid and anxiously

awaited my patient's next visit; meanwhile expecting to be suddenly called to relieve some urgent symptoms of intra-tympanic pressure, or suddenly checked chronic purulent discharge, but was always agreeably disappointed. On the contrary, I was in each case exceedingly pleased and delighted with the good reports my patients invariably brought. Of course, the mechanical deafness caused by the foreign mass in the meatus was sometimes complained of, but this was gladly endured when explained as only of a temporary nature.

Oftentimes one packing was enough. In other cases, the packed powder was washed out, by the discharge, in a few days, but I persevered, and have always been rewarded for any trouble in filling and repacking. If the discharge ceases and leaves a hardened mass of powder, etc., filling the meatus, it must be removed, but not by force nor by syringing. It must be softened by the instillation of warm *fluid cosmoline* (petroleol), which has the charming recommendation of not becoming rancid by heat, etc. As the mass softens it may be delicately picked loose and blown out of the meatus by the rubber bag of a Politzer's air-douche.

Perforations are healed, and large ones at that; tympanic mucous membrane becomes almost normal in appearance, hyper-secretion and all odor is removed, and "running ears" are absolutely cured by this most valuable antiseptic agent.

Solutions of boracic acid in equal parts of glycerine (which will partly dissolve it) and water—forty to eighty grains of the powdered acid to the ounce*—are to be recommended in acute purulent inflammation of the middle ear, or even in chronic purulent inflammation occurring in small or unruly children. In either case such a solution, which I designate "aqueous solution," should be *warmed, well shaken, and dropped into the ear once or twice daily*. Where perforations do not heal on account of their great size, or where there is sclerosis of tympanic mucous membrane, etc., I recommend most highly *powdered boracic acid* suspended in fluid cosmoline in varying proportions, *warmed, shaken*, and dropped into such ears once or twice weekly.

Silver and hard rubber instruments used in aural surgery should be kept in powdered boracic acid, and absorbent cotton

* Equal parts of water, glycerine, and strong alcohol (as suggested by Knapp) to forty, eighty, or one hundred grains to the fluid ounce constitute the "alcoholic solution."

should also be dusted with the same. I have seen some forms of parasitic otorrhœas transferred from patient to patient, and even with the most careful surgeon a case of "*aspergillus*" is often followed by one or more fresh ones occurring in those of his patients who have been treated about the same time.

(In this connection I beg to state, after careful microscopic investigations and the study of clinical facts pertaining thereto, that all the so-called varieties of *aspergillus*, which are usually divided, according to their apparent color, into different species, are but one and the same fungus as it undergoes the successive changes from white, yellow and red or purple to black, each representing successive stages of development of the same fruit, which when fully mature is black.)

Purulent tuberculous inflammation of the middle ear can be dismissed in a few words. Do not expect to cure such. It cannot be done. Antiseptic treatment is advisable, if only to prevent extension of the disease; but morphia and opium should also be freely used (locally) to relieve suffering. Experience in the *otorrhœas, which occur in children during dentition*, has caused me to look upon such as almost harmless to the functions of the parts or to hearing, provided they are not syringed, are kept moderately clean, and the secretion be prevented from undergoing fermentation. As a rule, all such cases have been overtreated; the discharge, which is at first serous, becomes mucoid, and if pent up by the fashionable and popular cotton plugs, fermentation and putrefaction are sure to take place, and pus is copiously poured out.

Irritating medicaments, such as glycerine, and particularly solution of Castile soap,* the tinctures, oils which will become rancid, etc., should be kept out of the ear, and if the parts are gently cleansed with absorbent cotton, such otorrhœas will, in the majority of cases, cure themselves. The solution I prefer for stubborn cases is double the quantity of powdered boracic acid, to be taken up by equal parts of glycerine and water. The mixture to be always warmed and shaken and dropped into the partially cleansed meatus.

I am using *fluid cosmoline* entirely in my practice, and, as *this*

* Castile soap solutions, as injections, have been the cause of one-fifth of all the chronic otorrhœas which I have seen.

*mineral oil** does not become rancid and induce parasitic inflammations, it is the best for the purpose, and may be conveniently used as a vehicle for powdered boracic acid, powdered extracts of opium and belladonna, morphia, atropia, etc.

As I have already strenuously advocated the free use of boracic acid I think it best to mention a few facts pertaining to its chemistry and pharmaceutical application. "*Acidum boracicum*—boracic acid. This acid was first obtained by Homberg (1702), and was formerly known as *Sal Sedativus Hombergi*. It is prepared by adding hydrochloric acid to a hot solution of borax, and crystallizes in white translucent scales of a white pearly lustre and of a slight acid taste. Crystallized boracic acid is insoluble in ether, soluble in alcohol, and requires about twenty-six to thirty parts of cold and three parts of boiling water for solution. The solution imparts a brown color to turmeric paper" (Stillé & Maisch).

"Its physiological action is about the same as that of borax with which impure acid is often mixed. It is a powerful antiseptic and anti-fermentative. Boracic acid possesses decided antiseptic and deodorant properties. It arrests fermentation and putrefactive decomposition, and is destructive to minute organisms, bacteria, vibrio, etc. Boracic acid may be employed in all the various forms and combinations in which carbolic and salicylic acids are now used. It appears to be as effective as carbolic acid and is even less irritating to the tissues than salicylic acid." (Bartholow.)

"Boracic acid has been long in use in Sweden as a secret remedy, under the name of "*aseptin*," but was first brought into notice by Lister in 1875, since which time it has been very extensively used. The pulverized acid has the advantage of producing no reaction on the mucous membrane, of withdrawing the water from the membrane,† which keeps a concentrated solution in contact with the inflamed surface and of not forming coagulations (nor concretions) with the secretions." (Green, J. O.)

* Although several members of the Society, and one of them a distinguished chemist, disputed the fact of *fluid cosmoline's* being a *mineral oil*, and wished to have it understood as a "vegetable oil," I insist on the term "*mineral*" for the oil in question. One gentleman even preferred calling it an "animal oil."

† Hence, the peculiar effervescing, "fizzing" sounds described by patients into whose ears the powdered boracic acid has just been packed.

"*Borated cotton*" is of no use whatever in aural surgery, the ordinary, absolutely clean absorbent cotton being preferable and especially so when dusted with the dry powdered boracic acid. It is by no means an easy undertaking to pulverize the scaly crystals of boracic acid, and once in the mortar they must be bruised and pounded, instead of rubbed, and all careful pharmacists use a bolting cloth to make the powder impalpable; the process is, at best, a tedious one. I have been compelled to require my patients, for whom the powdered acid has been prescribed, to bring with them the substance procured, for inspection, since druggists, as a rule, unless according to special agreement, dispense a powder, so-called, composed, for the greater part, of crystals of the acid. When properly powdered, no particles can be felt, and in dipping the finger into such a mass the sensation can hardly be said to be that of touch; the impression is that of powdered soapstone, such as is used by the glove and shoe makers. Messrs. Wyeth & Bro. of Philadelphia have furnished all of the powdered acid that I have used up to this time, and are ready, at the place where they are making their exhibit, to furnish reliable samples of the powdered acid* and the "aqueous" and "alcoholic solutions."

I have dwelt at unusual length upon the minutiae of what I am now advocating, that is, the dry method of treating otorrhœa with powdered boracic acid, since, to secure success, every step I have described must be carefully considered and scrupulously carried out. I have purposely omitted any report of cases, because my plan of treatment has been the same in every one. Suffice to say, I am able to turn to all recorded as "chronic purulent otitis media" in my private clinical record-books, and, since the advent of the boracic acid treatment, invariably find them marked cured.

If I have not gone too deeply into the details of this method, which I would most earnestly advocate as well worth a trial, and if I have appeared too enthusiastic, I would say, cease syringing ears except for the removal of cerumen and foreign substances, and rely upon asepsis, as well as antiseptics and anti-fermentatives generally, in the form of dry powders, and

* At least two pounds of Wyeth's Powdered Boracic Acid was distributed in small quantities to members of the Society, and numerous orders and letters from all parts of the State bear evidence of the demand which a successful experience in the use of this drug has created.

rarely as solutions for instillation. Look upon water and glycerine and the much-extolled and detestable Castile soap solutions as local irritant poisons, and taboo them, at my recommendation, as worse than useless. Be assured that success awaits those who will but adopt this method, which, at first sight apparently arduous, will eventually prove most profitable, both to patient and surgeon; and I will feel myself most happy if I have advanced the cause of aural therapeutics, and helped others win fresh laurels in the limited field of Aural Surgery.

1702 CHESTNUT STREET.

